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| EXAMINER |
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JAGANNATHAN, VASUDEVAN SALEM

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1714

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

07/870,759

Applicant(s)

CHENARD ET AL.

Examiner

Vasu Jagannathan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2003 and 12 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 324-401 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 324-401 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Introduction

1. The present Office action responds to the amendments filed October 20 and November 12, 2003 in Paper numbers 96 and 97.

The 103(a) rejections in paragraphs 8 and 10, only, of the preceding action, viz., Wilson in view of Leistner '588 and Kugele in view of Jennings, are dropped as superfluous. While the objections and rejections of record under 35 USC 112 are overcome, however, new claims 380 and 393 do not comply with 35 USC 112 as explicated below.

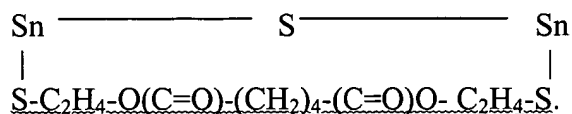
Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 380 and 393 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The metal-containing stabilizer of the formula III in claims 380 and 393 lacks antecedent basis in the "parent" stabilizer formula in independent claims 371 and 384, respectively. Formula III in claims 380 and 393 has a bridged portion identified by a wavy underline as in:



However, such a bridge can only arise if there is an indication that substituents A and D in the parent formula in claims 371 and 384 are linked. There is no such indication.

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Overview of the Rejections

3. The Table below organizes the subject matter of the claims and the rejections applied to them. The claims comprise metal-containing stabilizer(s) (component “a”) and a mercapto alkanol ester (component “b”). Component (a) can be of formulae (I) to (III) or involve combinations of at least two of these formulae. Component (b), in one variant, is recited as a “mercapto alkanol ester” or, in another variant, component (b) either has a specified formula, RCOOR'SH , or is recited as embodiments of the ester. These embodiments actually correspond to the cited formula. In making prior art-based rejections, the examiner has differentiated between these two variants.

| <i>Subject matter</i> | <i>Claim numbers</i> | <i>Rejections</i> |
|---|---|--|
| Compositions only | 324-348, 367, 368 and 371-401 | Obviousness Double Patenting over Kornbaum in view of Harrison, Bjelqvist and Sugahara See ¶ 4 |
| Compositions and Processes of using them <i>excluding</i> those where (a) is a stabilizer of formula (III) or at least two of (I) - (III) or where (b) is RCOOR'SH | 324-326, 335-338, 347-351, 353, 355-360, 362 and 364-370 | 102(e) over Bohlen See ¶ 5 |
| Compositions and Processes of using them <i>excluding</i> those where (a) is a stabilizer of formula (I) or where (a) contains S-bridge-S groups <i>or</i> where (b) is RCOOR'SH | 336-338, 347, 348, 358-360, 362, 364-366, 368, 370-372, 374-379, 381, 382, 384, 385, 387-392, 394, 395, 397, 398, 400 and 401 | 102(b) over Kugele See ¶ 6 |
| “Ditto” | “Ditto” | 103(a) over Leistner ‘182 or Mack or Molt any of which in view of Shoemaker See ¶ 7 |

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While the obviousness double patenting rejection is applied to compositions containing both variants of (b), the situation with respect to prior art-based rejections is different. It is recognized that prior art does not disclose compositions or processes where (b) is RCOOR'SH *in and of itself*. But what *is* disclosed are compounds where mercapto alkanol ester, RCOOR'S- , is *structurally* present as a fragment in a larger structure. This, however, brings claims that recite “a mercapto alkanol ester” (in contrast to RCOOR'SH) within the compass of prior art.

It is worth noting that before the applicants disclosed their contribution, the specific advantage of using a mercapto alkanol ester - especially when the ester isn't limited in and of itself to a compound of formula RCOOR'SH - had already been recognized in the prior art. Since this forms the linchpin of the examiner's case against patentability for the present claims, we quote, for instance, from Kugele:

“Thus, for example, a typical starting ester for making the organotin compounds of the invention is mercaptoethyl caprylate of the formula:



which is in contrast to the starting ester isooctyl thioglycolate having the formula:



used, for example in Kauder, U.S. Pat. No. 3,565,930 and Brecker, U.S. Pat. No. 3,565,931. Thus, in the starting compounds used in the present invention the free mercapto group which reacts with a tin compound in the formation of the compounds of the invention is on the alcohol part of the ester whereas in Kauder or Brecker it is on the acid part of the ester. This is an important distinction because the compounds of the present invention have significant advantages over those of Kauder or Brecker. In the

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first place they have superior stabilizing properties for vinyl chloride polymers" See column 1, lines 25 to 35 in Kugele.

The above makes it quite clear that there is a recognized advantage associated with using a mercapto alkanol ester, such as mercaptoethyl caprylate, a compound that contains the "reverse ester" linkage $-S-(CH_2)_2-OOC-$, or, equivalently, $-COO-(CH_2)_2-S-$, which is encompassed by the general reverse ester structure of $RCOOR'S-$, R' being alkylene, when it comes to stabilizing vinyl chloride polymers. It will be noted that in the above-mentioned reaction in Kugele involving a mercapto alkanol ester, the H is removed from SH in $RCOOR'SH$. The resulting product clearly contains the structurally intact "reverse ester" portion, $RCOOR'S-$, which imparts the benefits alluded to by Kugele. Examiner's position that a reverse ester is structurally present in Kugele's product is fully supported by the disclosure of that reference. For instance, see columns 27-28 where in describing Sample 31 below Table VII, Kugele uses the nomenclature of, e.g., dimethyltin bis (*2-mercaptoethyl pelargonate*). The italicized portion is clearly a mercapto alkanol ester by applicants' own terminology.

It is noted that, in some embodiments the ligand, SR'' , in component (a) can also have the "reverse ester" structure of a mercapto alkanol ester (see, e.g., claim 325 or 326). This poses no problem in making prior art-based rejections since the metal-containing stabilizers in the prior art admit such structures as is evident from the details of the rejections cited below.

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Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 324-348, 367, 368 and 371-401 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 11 to 16 of Kornbaum et al. (US 4,412,897) in view Harrison et al. (US 4,093,484), Bjellqvist et al. (US 4,278,518) and Sugahara et al. (US 4,060,508).

This rejection was previously given on pages 11-19 in the Office action mailed April 21, 2003 and is incorporated here by reference. Applicants' arguments against this rejection are addressed in paragraph 8.

While Kornbaum et al.'s composition explicitly includes a vinyl halide resin in addition to a stabilizing composition - in contrast to the present claims for a stabilizing composition where a vinyl halide resin makes its appearance only in the context of intended use - nevertheless that very fact itself coupled with the use of open language ("comprising") in the present claims indicates that no patentable distinction is imparted by the explicit presence of the resin.

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The statement in the present claims that the mercapto alkanol ester component (b) is present in an amount of about 2 to 25 times the amount by weight of Sn in component (a) is met by Kornbaum et al. as explained on pages 12 to 13 in the preceding Office action. Consequently, the heat or light stability property recited in the present claims must also be intrinsic to Kornbaum et al.'s composition.

While Kornbaum et al.'s claims do not explicitly state about 20 to 90 weight % of component (a) is replaced by (b), as required in the present claims, however, from the fact that the proportions of (a) and (b) in Kornbaum et al. viz. 0.1 to 5 and 0.1 to 6 weight %, respectively, based on vinyl halide polymer (see, e.g., patented claim 12), substantially overlap at least the corresponding amount of 0.01 to 5 weight % of (b) based on vinyl halide resin (see, e.g., claim 333), absent evidence to the contrary it is reasonable to infer that it would have been within the skill level of one of ordinary skill in the art to use an effective amount of metal-containing stabilizer such that the relative proportions of (a) and (b) would fall within the scope of the present claims.

New claims 367 and 368 are included since in Kornbaum et al.'s claims, the R group in the mercapto alkanol ester, $R(CH_2)_mCOOR'SH$, $m = 0$ to 6 (cf. col. 3, lines 30-35), is a hydrocarbon containing 1 to 20 C atoms. That shows that the acid portion of Kornbaum et al.'s ester, $R(CH_2)_mCOOH$, overlaps the natural fatty acids of the oils in present claims 367 and 368 such as, e.g., the natural fatty acid in safflower oil, i.e., linoleic acid which contains 18 C atoms. Claims 371-383 are included since Kornbaum et al.'s claims generically recite "an organotin containing heat stabilizer" which encompasses the instant metal-containing stabilizer of formulae III. Finally, claims 384-401 are included since Kornbaum et al. use the open language of "a

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stabilizing composition comprising” (see e.g. line 5 of Kornbaum et al.’s claim 11) which would embrace a blend of metal-containing stabilizers.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Note:

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 324-326, 335-338, 347-351, 353, 355-360, 362 and 364-370 are rejected under 35 U.S.C. 102(e) as being anticipated by Bohen et al. (US 4,115,352) .

This rejection was previously given on pages 23-27 in the Office action mailed April 21, 2003 and is incorporated here by reference. Applicants’ arguments against this rejection are addressed in paragraph 8.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 336-338, 347, 348, 358-360, 362, 364-366, 368, 370-372, 374-379, 381, 382, 384, 385, 387-392, 394, 395, 397, 398, 400 and 401 are rejected under 35 U.S.C. 102(b) as being anticipated by Kugele (US 4,062,881).

This rejection was previously given on pages 19-23 in the Office action mailed April 21, 2003 and is incorporated here by reference. Applicants' arguments against this rejection are addressed in paragraph 8.

It is noted that, Kugele discloses the metal-containing stabilizers of formula (III) in new claims 371 or 384. This is confirmed by Kugele's formula just below line 25 in column 3 when the subscripts in that formula have the following meaning (indicated in lines 38-50): x is 1; R_1 , R_3 , R_5 are $-S-(CR_6 R_7)-(CR_{15} R_{16})-OOC- R_{10}$; and R_2 , R_4 are alkyl. However, Kugele does not disclose a variant of formula (III) as shown in claims 380, 383, 393 and 396 where applicants' substituents A and D combine to form a S-bridge-S linkage. Thus these claims are not included in this rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Note:

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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7. Claims 336-338, 347, 348, 358-360, 362, 364-366, 368, 370-372, 374-379, 381, 382, 384, 385, 387-392, 394, 395, 397, 398, 400 and 401 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leistner et al. (US 2,870,182) or Mack et al. US (2,914,506) or Molt (US 3,931,263) any one of which in view of Shoemaker et al. (US 2,460,436).

This rejection was previously given on pages 32-35 in the Office action mailed April 21, 2003 and is incorporated here by reference. Applicants' arguments against this rejection are addressed in paragraph 8.

As for the metal-containing stabilizers of formula (III) in new claims 371 or 384, see, e.g., the very last formula below Example 4 in column 10 of Molt. However, there is no disclosure of a variant of formula (III) as shown in claims 380, 383, 393 and 396 where applicants' substituents A and D combine to form a S-bridge-S linkage. Thus these claims are not included in this rejection.

Response to Arguments

8. Applicant's arguments filed October 20, 2003 in the amendment of Paper number 96 have been fully considered but they are not persuasive as detailed below.

Response to arguments concerning the obviousness-type double patenting rejection

Applicants' argument on pages 35-39 regarding the propriety of making a two-way double patenting rejection is puzzling because it contradicts their own statement of record. Thus, in an earlier amendment filed January 21, 2003 in Paper number 93, they stated, on page 12, that

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“a two-way obviousness is mandated”. It is in response to that statement that the examiner made a two-way obviousness-type double patenting rejection.

Applicants’ argument on pages 40-47 that the double patenting rejection is improper because the secondary references, *viz.* Harrison, Bjellqvist and Sugahara, are not in the same field of endeavor as the claimed invention is not persuasive. According to MPEP 2145, “a prior art reference is analogous if the reference is in the field of applicant’s endeavor *or, if not, the reference is reasonably pertinent to the particular problem with which the inventor was concerned.* In *re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Italics added. Since these secondary references all deal with sterilized vinyl halide polymer-containing compositions or articles made from them, it is *prima facie* evident that one of ordinary skill in the art of irradiating vinyl halide polymers would naturally find these references to be “reasonably pertinent” to the problem at hand. This meets the alternative criterion in MPEP quoted above.

Response to arguments concerning prior art-based rejections

In their overview of the prior art-based rejections, the applicants state, on page 48 of the amendment filed October 20, 2003, that their discovery is “that a mercaptan complexed with a tin atom, when used in combination with an uncomplexed mercaptan (or reverse ester mercaptan not containing a metal atom), in an amount of about 2 to about 25 times the amount of the tin in an organotin compound, results in a dramatically improved level of stabilization”. Emphases added. They state that prior art does not teach compositions containing the above. Applicants also state, towards the end of page 50, that “the examiner is trying to define component (b) of the

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claimed invention in a way that is inconsistent with the present disclosure and claims, and thus the intent of the applicants.”

However, the feature upon which applicant relies *viz.* “uncomplexed mercaptan” is **not** the thing exclusively claimed in the rejected claims in paragraphs 5-7 above. Apart from the fact that the phrase in quotation marks never appears in the disclosure as originally filed, it is crucial to note that what the rejected claims actually recite is “a mercapto alkanol ester” *per se* which is **not** limited to the embodiment of an “uncomplexed mercaptan”.

It is useless for applicants to rely upon the specification or their intent to slant the scope of the claims away from prior art especially since it has been held that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057, 1059 (Fed. Cir. 1993) citing *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

In light of the above, the applicants’ arguments against the rejection over Kugele or Bohen based on the allegation that component (b) in the present claims refers to an “uncomplexed mercaptan” must fail.

As regards meeting the claimed limitation of the amount of mercapto alkanol ester vis-à-vis the metal-containing stabilizer, the examiner stands by his calculation as set forth in the rejections at pages 21 and 26 of the preceding Office action. The applicants ask as to why the examiner did not include the portions of the mercapto alkanol ester-containing compound other than the ester part. In light of the discussion above as to what is encompassed by the recitation of a mercapto alkanol ester *per se* the answer is that all that is required to meet the amount in the claims is to establish the amount of the mercapto alkanol ester portion because the scope of the

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claims – as discussed above – reads on any moiety that contains a mercapto alkanol ester fragment and it is the amount of this fragment, not anything else, that is required to be “2 to 25 times” the amount of metal in the metal-containing stabilizer component.

With respect to the 103 rejection, the applicants’ principal argument is that Shoemaker discloses mercapto alkanol esters as plasticizers not as stabilizers. Applicants have attached handouts to show that plasticizers and stabilizers are not the same. This argument is unpersuasive because if there is motivation to substitute mercapto alkanol esters for the prior art plasticizers (and the applicants concede this *arguendo* at the top of page 50 of their amendment) then any property, including ones not contemplated such as stabilization, would inevitably be imparted to a composition which contains these esters.

Moreover, applicants’ position contradicts US 4,412,897 (used in the double patenting rejection) where the inventive entity includes one of the present inventors, Chénard. In particular, see column 1, lines 26-28 of that patent which discloses that at least some plasticizers are known to render PVC resistant to ionizing radiation thereby showing that plasticizers do function as stabilizers at least against ionizing radiation.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Vasu Jagannathan at telephone number (571) 272-1119.

Vasu Jagannathan
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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700